



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,695	03/29/2004	Daniel J. Marchok	2376.2170-013	8924
57690 7590 12/18/2008 HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133				
EXAMINER				
YUEN, KAN				
ART UNIT		PAPER NUMBER		
2416				
MAIL DATE		DELIVERY MODE		
12/18/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/813,695

**Applicant(s)**

MARCHOK ET AL.

**Examiner**

KAN YUEN

**Art Unit**

2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 42-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 42-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

***Detailed Action***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/22/2008 has been entered.

***Response to Arguments***

2. Applicant's arguments, see remark, filed on 9/22/2008, with respect to the rejection(s) of claim(s) claims 42-52 under 103 rejections have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kennedy (Pat No.: 5192957).

***Claim Rejections - 35 USC § 103***

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 42, 46, 48, 51, 53, 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (Pat No.: 5502749), in view of Scarpa (Pat No.: 5636250) and Kennedy (Pat No.: 5192957).

**For claim 42**, Ozaki disclosed the method of recovering a pilot tone sub-symbol (Ozaki see column 2, lines 55-62). The receiver unit demodulates or recovers the transmission signal;

calculating a parameter value difference between the pilot tone sub-symbol and a consecutive pilot tone sub-symbol (Ozaki see column 2, lines 65-67, and see column 3, lines 1-2). The first phase shift detection unit detects the first phase shift information between the reference signal and the received signal. The first phase shift information can be interpreted as the difference parameter value, and the received signal can be the pilot tone sub-symbol, and the reference signal can be the consecutive pilot tone sub-symbol; and

adjusting a clock signal frequency depending on the parameter value difference to lock on a phase and frequency of the pilot tone (Ozaki see column 3, lines 5-10). The radio receiving unit corrects (adjusting) the phase shift of the received data, based on a comparison (difference) of the output signals (first phase shift information, and second

phase shift information) from the first phase shift detection unit and the second phase shift detection unit.

However, Ozaki did not disclose the method of searching for a pilot tone by scanning a frequency range in predetermined frequency steps and adjusting a clock signal frequency to lock on a phase and frequency of the pilot tone.

Scarpa from the same or similar fields of endeavor disclosed the method of searching for a pilot tone by scanning a frequency range in predetermined frequency steps (Scarpa column 4, lines 40-45). The filter 122 scans the entire frequency region in which a VSB pilot tone may be located.

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Scarpa in the network of Ozaki. The motivation for using the method as taught by Scarpa in the network of Ozaki being that it provides accuracy in the transmission system.

Kennedy from the same or similar field of endeavor disclosed the method of adjusting a clock signal frequency to lock on a phase and frequency of the pilot tone (Kennedy column 4, lines 45-67, fig. 2). The element 58 comprises a combined digital phase-frequency detector that may be similar to that of integrated circuit MC12540. The output of PDF 58 in combination with loop filter 59 provides a frequency and phase correcting control voltage to the aforesaid VCO 70 to lock its frequency and phase as scaled by digital frequency dividers 50 and 54.

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Kennedy in the network of Ozaki

and Scarpa. The motivation for using the method being that it allows receivers to rapidly re-acquire data transmission and thus it reduces system processing item.

**Regarding claim 46**, Ozaki disclosed the method of the parameter comprises phase (see column 2, lines 65-67, and see column 3, lines 1-2). The phase shift detection unit detects the phase shift between the reference signal and the received signal. The phase shift can be interpreted as the difference parameter value, and the received signal can be the pilot tone sub-symbol, and the reference signal can be the consecutive pilot tone sub-symbol.

**Claim 48** is rejected similar to claim 42.

**Regarding claim 51**, Ozaki disclosed the method of the parameter comprises phase (see column 2, lines 65-67, and see column 3, lines 1-2). The phase shift detection unit detects the phase shift between the reference signal and the received signal. The phase shift can be interpreted as the difference parameter value, and the received signal can be the pilot tone sub-symbol, and the reference signal can be the consecutive pilot tone sub-symbol.

**Regarding claim 53**, Kennedy disclosed the method of including locking on the phase and frequency of the pilot tone as a function of adjusting a voltage controlled oscillator using a phase locked loop (Kennedy column 4, lines 45-67, fig. 2).

**Regarding claim 54**, Kennedy disclosed the method including a locking module arranged to lock on the phase and frequency of the pilot tone as a function of adjusting a voltage controlled oscillator using a phase locked loop (Kennedy column 4, lines 45-67, fig. 2).

6. Claims 43, 44, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (Pat No.: 5502749), In view of Scarpa (Pat No.: 5636250) and Kennedy (Pat No.: 5192957) as applied to claim 42 above, and further in view of Nakano et al. (Pat No.: 5559789).

**For claim 43** is Ozaki, Scarpa and Kennedy disclosed all the subject matter of the claimed invention with the exception of recovering the pilot tone sub-symbol comprises adjusting the clock signal frequency so that the pilot tone sub-symbol can be received. Nakano et al. from the same or similar fields of endeavor teaches the method of recovering the pilot tone sub-symbol comprises adjusting the clock signal frequency so that the pilot tone sub-symbol can be received (**see column 3, lines 62-67, and see column 4, lines 1-5**). The frequency adjustment is used to compensate the phase difference, so that pilot signal can be received correctly. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Nakano et al. in the network of Ozaki, Scarpa and Kennedy. The motivation for using the method as taught by Nakano et al. in the network of Ozaki, Scarpa and Kennedy being that the method will lower the transmission error rate between the transmitter and the receiver.

**Regarding claim 44**, Nakano also disclosed the method of identifying the pilot tone sub-symbol (**see column 4, lines 1-6**). The detector 24 detects the frequency offset, where frequency comprises signal or pilot tone sub-symbol.

**Regarding claim 50**, Nakano also disclosed the method of an identifier of the pilot tone sub-symbol (**see column 4, lines 1-6**). The detector 24 detects the frequency offset, where frequency comprises signal or pilot tone sub-symbol.

7. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (Pat No.: 5502749), In view of Scarpa (Pat No.: 5636250), Kennedy (Pat No.: 5192957), Nakano et al. (Pat No.: 5559789), as applied to claim 44 above, and further in view of Ojanpera et al. (Pat No.: 5703873).

**For claim 45**, Ozaki, Scarpa, Kennedy and Nakano et al. disclosed all the subject matter of the claimed invention with the exception of scanning a plurality of bins to locate a bin containing the pilot tone sub-symbol. Ojanpera et al. from the same or similar fields of endeavor teaches the method of scanning a plurality of bins to locate a bin containing the pilot tone sub-symbol (**see column 4, lines 48-52**). The subscriber equipment scans the frequency band or bins to locate the pilot transmission or pilot tone sub-symbol. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Ojanpera et al. in the network of Ozaki, Scarpa, Kennedy and Nakano et al. The motivation for using the method as taught by Ojanpera et al. in the network of Ozaki, Scarpa, Kennedy and Nakano et al. being that the method will increase the accuracy of receiving signals.



8. Claims 47, 49, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (Pat No.: 5502749), In view of Scarpa (Pat No.: 5636250) and Kennedy (Pat No.: 5192957), as applied to claim 42 above, and further in view of Hill et al. (Pat No.: 3795772).

**For claim 47**, Ozaki, Scarpa and Kennedy disclosed all the subject matter of the claimed invention with the exception of using the clock signal frequency for phase locked loop processing. Hill et al. from the same or similar fields of endeavor teaches the method of using the clock signal frequency for phase locked loop processing (**see column 3, lines 9-14**). The purpose of VCO 12 is to provide a reference frequency, which is phase locked to the clock frequency. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Hill et al. in the network of Ozaki, Scarpa and Kennedy. The motivation for using the method as taught by Hill et al. in the network of Ozaki, Scarpa and Kennedy being that the method will maintain to receive frequency with correct phase.

**Regarding claim 49**, Hill et al. also disclosed the method of the clock source is a voltage controlled oscillator (**see column 3, lines 9-14**). The purpose of VCO 12 is to provide a reference frequency, which is phase locked to the clock frequency, so that signal can be received or recovered correctly.

**Regarding claim 52**, Hill et al. also disclosed the method of a phase locked loop processor that processes based on the signal frequency (**see column 3, lines 9-14**). The purpose of VCO processor is to provide a reference frequency, which is phase locked based on clock frequency.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAN YUEN whose telephone number is (571)270-1413. The examiner can normally be reached on Monday-Friday 10:00a.m-3:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kan Yuen/  
Examiner, Art Unit 2416

/Ricky Ngo/  
Supervisory Patent Examiner, Art  
Unit 2416

KY

